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PIPE ADAPTER

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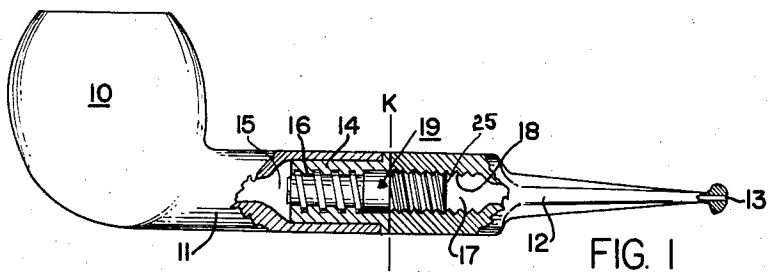


FIG. 1

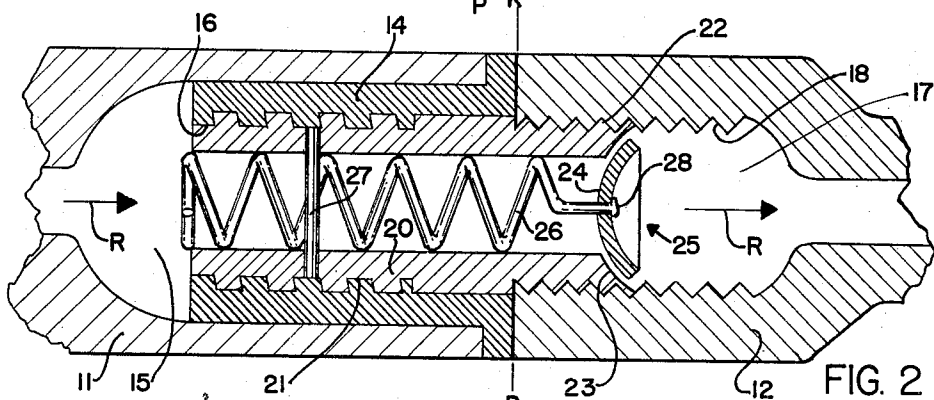


FIG. 2

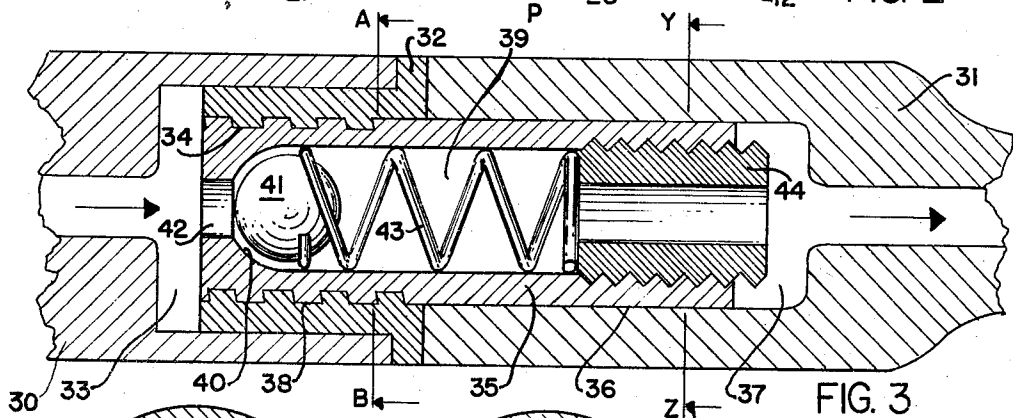


FIG. 3

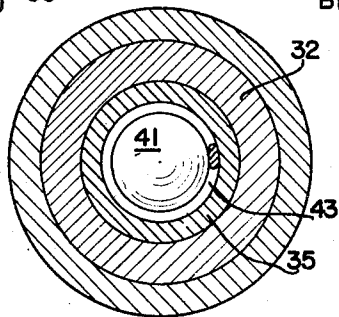


FIG. 4

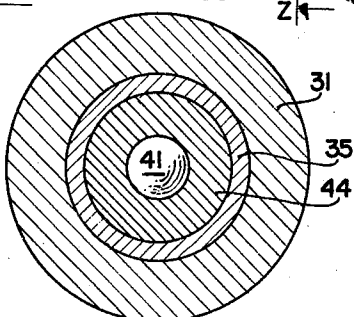


FIG. 5

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PIPE ADAPTER

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1 Claim. (Cl. 131—215)

This invention relates to pipes in which tobacco is smoked, and more particularly to an adapter unit which can be fitted between the stem and the mouthpiece of most presently used pipes to prevent moisture from accumulating in the pipe stem adjacent the bowl.

Numerous efforts have been made by pipe designers and manufacturers to minimize the condensation and accumulation of moisture in pipes and to prevent that moisture which does build up from being drawn into the smoker's mouth.

Most of those efforts have resulted in more or less complicated structural arrangements in the base of the bowl and the lower stem which were intended to direct the moisture downwardly into traps or depressed sections of the air passage in the hope that the air drawn in by the smoker would pass over the top of the moisture and arrive clean and dry in the smoker's mouth.

This general strategy was effective as long as the indraughts of smoke were of even and moderate intensity, but strong and sudden suction by the smoker generally produced a condition of negative pressure within the air passage effective to pick up some of the moisture and carry it into the smoker's mouth.

Experiments were made with filters and valves of various types which were intended to prevent the moisture from moving in the direction of the indrawn air, but they were generally unsatisfactory since they required too much effort on the part of the smoker to draw in enough air to keep the tobacco properly ignited.

Furthermore, it was found that none of the methods for entrapping the moisture could prove completely effective unless accompanied by some method for preventing moisture from moving from the smoker's mouth during intervals between puffs, through the mouthpiece and toward the bowl.

Some measure of success in this direction has been accomplished by certain types of specially designed and somewhat complicated pipe bowl and stem arrangements, but only a relatively small percentage of smokers consider the advantages provided by the specially constructed pipes to warrant their comparatively high cost or to justify discarding the pipes they now own.

An object of this invention is the provision of a device adapted to prevent moisture from entering the lower stem and the bowl of a pipe from the aperture in the mouthpiece.

Another object of my invention is the provision of a pipe adapting device having means to prevent air from being blown into the stem of the pipe during expulsions of air occurring in the normal puffing process.

A further object of the present invention is the provision of an adapting device of the character described which will not noticeably increase the effort required by the smoker in drawing air through the pipe.

A still further object of this invention is the provision of an adapting device of the character described which can be included as a standard element in newly manufactured pipes and can be fitted without difficulty into

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the stem and mouthpiece jointure of most existing pipes.

An additional object of this invention is the provision of a pipe adapter, of the character described above, which will also be exteriorly shaped in a manner adapted to prevent its being improperly installed when the parts of the pipe are being reassembled after cleaning or inspection.

In brief, the device of my invention consists of a check valve especially exteriorly shaped to fit within the stem portion of any pipe of average dimensions and being effective to limit movement of air through the passage of the pipe to one direction. It includes a tubular body threaded differently at each end and having a concave inward edgewise bevel at one end adapted to fit tightly against and form a tight closure with the juxtaposed arcuate face of a concave valve member. Tension means is provided to position the valve member normally against the end edge of the tube body, yet allow the valve member to be displaced outwardly from the tube to permit air to be drawn therethrough.

Various additional important objects of my invention will be apparent in the following specification when read with reference to the accompanying drawings in which:

Figure 1 is a side elevational view of a generally conventional smoker's pipe having the central portion of the stem partially broken away to show the positioning therein of an adapter constructed in accordance with my invention;

Figure 2 is a longitudinal sectional view of the central stem portion of the pipe of Figure 1, being substantially enlarged in scale to show more clearly the details of one preferred embodiment of the invention;

Figure 3 is a longitudinal sectional view similar to Figure 2, showing an alternate form of my invention;

Figure 4 is a cross sectional view taken along the line A—B of Figure 3, and

Figure 5 is a similar cross sectional view taken along the line Y—Z of Figure 3.

Reference is again made to the side elevational view of the conventional pipe shown in Figure 1 in which the numeral 10 designates the pipe bowl terminating downwardly in the integral stem portion 11 which is jointed along the line K—P to the mouthpiece 12 which is terminated at the aperture end 13.

A flanged bushing 14, seen in the enlarged longitudinal section of Figure 2, has a press-fit in the bore 15 in the stem portion 11 and is provided with an internal thread 16. A similar bore 17 is disposed, coaxially with the bore 15, in the mouthpiece member 12 and is interiorly threaded at 18 with a different thread from that used at 16.

The outer surface of the tubular valve body is shown at 19 in Figure 1, and in longitudinal section at 20 in Figure 2. As indicated in the latter figure, the tubular body 20 is threaded exteriorly at 21 to interfit with the thread 16 of the flanged bushing 14 and at the opposite end at 22 to interfit with the thread 18 of the mouthpiece 12. By this method of construction and threading, the tubular section 20 may be threaded into the bushing 14 and the mouthpiece 12 run onto the thread 22 at the opposite end and tightened thereon to bring the mating or faying surfaces along the line K—P into tight juxtaposition without imposing any strain upon the stem 11 of the pipe.

One end of the tubular body 20 is bevelled concavely to fit arcuately against the convex face 24 of the concave valve member 25. A coiled tension spring 26 is disposed concentrically of the tubular member 20, and is held interiorly thereof by means of a pin 27 engaged in diametrically opposite holes in the wall of the tube 20 adjacent one end thereof. The opposite end of the spring 26 is passed through an axial hole in the concave valve

member 225 and is headed in the concave center of said valve member 25 as shown at 28. By rotating the spring 26 within the tube 20 relative to the pin 27, the spring length between the pin 27 and the valve member 25 may be decreased or increased, thereby respectively tightening or loosening the contact between the convex surface 24 and the edgewise end face 23 of the tube 20.

As will be readily understood by reference to the Figures 1 and 2, suction applied at the apertured end 13 will cause the valve member 25 to be displaced allowing air and smoke to move in the direction of the arrows R in Figure 2 between the convex surface 24 of the valve member 25 and the bevelled end edge 23 of the tubular member 20, and thence through the mouthpiece 12.

An alternate embodiment of my invention is shown in Figure 3 which is a longitudinal sectional view of the stem portion 30 and the mouthpiece 31 of a conventional pipe such as that of Figure 1.

A flanged bushing 32, pressed inwardly of a bore 33 in the stem 30, is provided with an interior thread 34. The valve element is enclosed in a generally tubular body 35 dimensioned at one end 36 for a press fit within a bore 37 disposed axially in the mouthpiece 31. The opposite end of the tubular body 35 is threaded exteriorly at 38 to mate with the thread 34 of the bushing 32. The axial bore 39 of the tube 35 is diminished in diameter, as indicated at 40 at its end disposed inwardly of the bore 33, to provide a generally semicircular interior end form adapted to receive and conform with the spherical form of the ball 41 which is effective to close the aperture 42 when urged thereagainst by pressure of the coil spring 43. A tubular bushing 44 is threadable into the tube 35 at the end thereof spaced from the aperture 42, and is movable axially of the tube 35 to increase or decrease pressure upon the spring 43 and thence upon the ball 41.

Numerous modifications and variations of the present invention will occur to those skilled in the art after a careful study hereof. All such, properly within the basic spirit and scope of the present invention are intended to be included and comprehended herein as fully as if specifically described, illustrated and claimed herein.

The exact compositions, configurations, constructions, relative positionings, and cooperative relationships of the various component parts of the present invention are not critical, and can be modified substantially within the spirit of the present invention.

The embodiments of the present invention specifically described and illustrated herein are exemplary only, and are not intended to limit the scope of the present invention, which is to be interpreted in the light of the prior art and the appended claim only, with due consideration for the doctrine of equivalents.

I claim:

In a tobacco pipe having a bowl having a shank extending therefrom and a mouthpiece connected to the shank, an adjustable check valve comprising a flanged bushing adapted to receive an inner bushing such that the shank has a press fit on and over the flanged bushing and the inner bushing has a threaded connection with the interior of the adjacent end of the mouthpiece, the end of the inner bushing adjacent the mouthpiece having a concave seat adapted to receive a similar concave valve member having an aperture at its central portion, the central portion of the concave valve member being located at the axis of the bushings and having a longitudinal extension of a coil spring secured therein, a pin extending transversely of the inner bushing through apertures in diametrically located holes in the inner bushing adjacent the end opposite the mouthpiece end thereof, said pin traversing the coil spring whereby twisting the coil spring and the valve member will cause the valve member to move toward or away from said seat.

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